

shaping the metal board near said front end and rear [end at a predetermined angle] ends into a predetermined shape; and

heat treating the metal board to reduce stresses formed in the metal board.

26. (Once Amended) A method of manufacturing a [sports board] skateboard as recited in claim 25, wherein the step of providing an elongated metal board includes extruding a metal board.

27. (Once Amended) The method of claim 25, [further including shaping said front and rear ends of the metal board into a predetermined shape] wherein shaping includes shaping the aluminum metal board near said front end and rear end at a predetermined angle.

REMARKS

Claims 1-9, 11, 13-15 and 18-27 are pending in the present application and stand rejected. Applicants have cancelled claims 12, 16, 17 and 28. Applicants have amended claims 1-9, 11, 13-15 and 18-27 to more clearly and specifically set forth the subject matter which Applicants regard as the invention.

Applicants respectfully request reconsideration and allowance of the application in view of the included amendments and the following remarks.

§102(b)-Cox:

In regard to the rejection of claims 11, 13, 14, 15, 16 and 18, Applicants respectfully traverse this rejection because Cox does not disclose each and every element required by the amended claims. Cox teaches a water ski comprising a weldment of round aluminum tubing with round longitudinally elongated cavities. In contrast, the amended claimed invention recites a metal skateboard, not a sports board. Applicants respectfully submit that skateboards and water skis are non-analogous arts. Skateboards are adapted to be mounted on wheels, for the purpose of being ridden on a hard surface such as cement or pavement, and are adapted to be ridden with both rider's feet extending generally perpendicular to the longitudinal axis of the board. Further, a skateboard undergoes much greater stress during normal activity than a water ski because a skateboard it used on a much a harder surface, i.e., cement or pavement compared to water, and skateboards are

frequently used for jumping onto such a surface. Thus, the water ski teachings of Cox are not applicable to skateboards.

Further, in regard to claim 14, even if the teachings of Cox applied to skateboards, Cox does not disclose, teach or suggest a hollow keel with a width W_2 greater than height H_1 , because Cox teaches circular hollow tubes, i.e., width equal to height. A hollow keel with a width greater than its height is important because it reduces the weight of the skateboard while minimizing the thickness of the skateboard. A skateboard constructed in accordance with the teachings of Cox teaches away from a reduced weight board having minimal thickness.

First, if a skateboard was constructed according to the teachings of Cox, the skateboard would never be as light as the claimed invention. This is because a skateboard constructed according to claimed invention has one or more hollow keels of larger total cross-sectional area than those taught in the Cox water ski. A skateboard constructed in accordance with the teachings of Cox would be heavier than the claimed skateboard because the maximum hollow, or lightening area created by a series of round keels (Cox) is necessarily less than the maximum hollow, or lightening area created by a keel with W_2 greater than H_1 . Specifically, even if the two boards are made of the same material and have the same external dimensions, a skateboard constructed according to the claimed invention would always have a greater hollow cross-sectional area than a skateboard constructed according to the teachings of Cox because, geometrically, a hollow keel having a width greater than its height such as, for example, rectangle or other shape circumscribing a series of aligned circles, necessarily encompasses more area than the sum of the areas of the inscribed circles. This translates into less hollow area possible under Cox's teachings than under the claimed invention, and, thus, Cox teaches a heavier and more massive board than the claimed invention.

Second, if a skateboard was constructed according to the teachings of Cox so that the Cox skateboard was constructed to be equivalent in total hollow cross-sectional area to a skateboard constructed according to the claimed invention, the Cox skateboard could never be made as vertically thin as the claimed invention. This is because, as discussed above, a skateboard constructed according to the claimed invention having the same vertical thickness as a skateboard constructed in accordance with the teachings of Cox would have hollow keels of larger total cross-sectional area than those of a Cox board. Specifically, given that the two boards have the same external dimensions, a skateboard constructed according to claimed invention could always be made

to have a larger hollow cross-sectional area than a skateboard constructed according to Cox for the geometrical reason stated above, namely, a hollow keel having a width greater than its height such as, for example, a rectangle or other shape circumscribing a series of aligned circles necessarily encompasses more area than the sum of the areas of the inscribed circles. Therefore, a skateboard constructed in accordance with the teachings of Cox would have to be vertically thicker than the claimed skateboard in order to have the same total hollow cross-sectional area. However, the low profile, or vertically thin cross-section created when $W2$ is greater than $H1$, is essential for skateboard applications, because it lowers the rider, who must maintain balance on top of a board mounted above wheels and wheel truck assemblies. In contrast, board thickness is far less important in water ski applications like Cox, where the water ski rider stands on water skis not elevated above the water, but partially submerged in the water. When applied to the purposes of a skateboard, the low profile feature of the claimed invention resulting from $W2$ being greater than $H1$ is analogous to providing appropriate thin-soled shoes for an athlete, whereas the vertically thicker, round cavities of Cox are more analogous to providing destabilizing, high-heeled shoes to an athlete. Thus, Cox teaches an inherently thicker board than that resulting from the claimed invention.

Therefore, Applicants respectfully submit that amended claims 11, 13, 14, 15, 16, and 18 are not anticipated by Cox.

§103(a)-Cox:

In regard to the rejection of claims 1, 3, 4, 5, 8, 12, 17, 21, 23-25, 27, and 28 as being unpatentable over Cox, Applicants respectfully traverse this rejection because, as discussed above, Cox does not disclose, teach or suggest a skateboard nor a skateboard with a hollow keel with a width $W2$ greater than height $H1$.

In regard to claim 5, Cox does not disclose, teach, or suggest an arcuate shaped rear end. In Cox, the rear end of the water ski is squared-off, which is typical for water skis. This squared-off shape is apparently hydro-dynamically advantageous for water ski applications, where the rear of the ski is partially submerged, and the ski travels only in the forward direction. In regard to claims 8 and 21, Cox does not disclose, teach, or suggest a bent-up rear tip portion because Cox does not disclose, teach or suggest rearward travel with the disclosed water ski.

In regard to claims 23 and 24, Cox does not disclose, teach, or suggest a skateboard, especially a skateboard that either deflects less than 0.162 inches with a load of 200 pounds, or deflects less than 0.203 inches with a load of 250 pounds. As discussed above, a skateboard undergoes considerably more stress than a water ski because it is used on a much harder surface than water, and the applications for a skateboard, e.g., jumping, subject the skateboard to much greater forces than a water ski. Thus, the above deflection/load values are not obvious over Cox.

In regard to claims 25, 27, and 28, Cox does not disclose, teach, or suggest a method of manufacturing a skateboard. In contrast, Cox discloses a water ski manufactured by placing lengths of commercially available aluminum tubing side-by-side, and then welding them together. Further, though heat treating is a well known industrial process, the claimed method of manufacturing an aluminum skateboard is not known in skateboard manufacturing. Heat treating for improved mechanical properties is especially advantageous in the skateboard of the present invention because strength per unit mass is critical since the mass of the skateboard is minimized by providing one or more longitudinally elongated hollow sections.

Therefore, Applicants respectfully submit that the claimed invention is not obvious over Cox.

§103(a)-Cox in view of Joyce:

In regard to the rejection of claims 6 and 19 as being unpatentable over Cox in view of Joyce, Applicants respectfully traverse this rejection because, as discussed above, Cox does not disclose, teach or suggest a skateboard, nor a skateboard with a hollow keel with a width W_2 greater than height H_1 . Joyce also fails to disclose, teach or suggest these features. Further, the combination of Joyce and Cox does not achieve a skateboard with plastic end guards. Moreover, Applicants do not agree that proper motivation exists to combine Joyce with Cox. Cox discloses a water ski made out of aluminum tubing. Joyce discloses a plastic surfboard nose guard. As discussed in the background of the invention of Joyce, the nose of a surfboard is particularly vulnerable to damage caused by head on collisions with debris in the ocean, collisions with other surfers, the nose being "dug into" the water such that the surfboard is upended, scraping the nose against sand or rocks on the ocean floor, and jamming the nose portion of the surfboard into the sand to hold it in standing position when not in use. The motivations for protecting the nose of a surfboard are not applicable to a water

ski such as that in Cox because a water ski is subject to a different type of use. Thus, proper motivation does not exist to combine the references in the manner suggested.

Thus, claims 6 and 19 are not obvious over Cox in view of Joyce.

§103(a)-Cox in view of Mayr:

In regard to the rejection of claim 26, Applicants respectfully submit that claim 26 is not obvious over Cox in view of Mayr for the reasons given above with respect to claims 25 and 27. Neither of these references disclose, teach, or suggest a method of manufacturing a skateboard nor heat treating the metal board to reduce stresses formed in the metal board. Cox discloses a water ski manufactured by placing lengths of commercially available aluminum tubing side-by-side, and then welding them together. Mayr discloses a snow ski comprising several elements, one of which could be extruded. Applicants also do not acquiesce to the motivation for combining the method of manufacturing the snow ski in Mayr with the water ski of Cox. Thus, Applicants respectfully submit that claim 26 is not obvious over Cox in view of Mayr.

§103(a)-Tibbals in view of Vogel:

In regard to the rejection of claims 1-5, 8, 9, 11-18, and 21-24 as being unpatentable over Tibbals in view of Vogel, Applicants respectfully submit that proper motivation does not exist to combine these references, and even if proper motivation existed, the combination of the cited references does not achieve the claimed invention.

First, proper motivation does not exist to combine Vogel with Tibbals. Tibbals relates to a skateboard having a board member pivotally mounted on a frame to effect a braking action on wheels of the skateboard. In contrast, Vogel teaches a snow ski made up of two elongated U-shaped members with an elongated plastic filling therebetween. In addition to the vast differences between the Tibbals and Vogel boards, Tibbals relates to the field of skateboards generally, whereas Vogel relates to the wholly separate and distinct field of snow skis. There would be no motivation to combine the teachings of these different fields for the same reasons that there would be no motivation to combine a skateboard with the teachings of a water ski, i.e., as previously discussed regarding Cox. Therefore, there would be no motivation to combine Vogel with Tibbals.

Further, the combination of these references does not achieve the claimed invention. The combination of Vogel and Tibbals does not disclose, teach, or suggest a metal or aluminum skateboard. Tibbals discloses a skateboard of complex geometry which could not feasibly be made out of metal. The combination of these references also fails to disclose, teach, or suggest a skateboard with one or more hollow cavities. Tibbals discloses a skateboard with two ridges which extend longitudinally on the bottom of the board. Applicants respectfully submit that the two ridges of Tibbals do not disclose, teach, or suggest a hollow cavity, or hollow keel, or any other hollow shape. Further, the side sections of the Tibbals skateboard are not hollow.

In regard to claims 23 and 24, the combination of Vogel and Tibbals does not disclose, teach, or suggest a skateboard wherein the board either deflects less than 0.162 inches with a load of 200 pounds, or deflects less than 0.203 inches with a load of 250 pounds. As discussed above, Tibbals does not teach a metal board. If the cross sections of elements were adjusted to obtain the claimed relationships, the board necessarily would become substantially thicker, which, as discussed above, impairs skateboard rideability. Therefore, Applicants respectfully submit that claims 23 and 24 are not obvious over Tibbals in view of Vogel.

§103(a)-Tibbals in view of Vogel, Endo:

In regard to the rejection of claims 6 and 19 as being unpatentable over Tibbals in view of Vogel and further in view of Endo, Applicants respectfully submit that these claims are not obvious for the reasons given above with respect to Tibbals in view of Vogel.

§103(a)-Tibbals in view of Vogel, Zatlin:

In regard to the rejection of claims 7 and 20 as being unpatentable over Tibbals in view of Vogel and in further view of Zatlin, Applicants respectfully submit that these claims are not obvious for the reasons given above with respect to Tibbals in view of Vogel. Further, there would be no motivation to combine Zatlin with Tibbals and Vogel. First, there would be no motivation to combine Zatlin with Vogel because, as discussed above, Vogel relates to a non-analogous art, namely, snow skis. There would be no motivation to combine Zatlin with Tibbals because Zatlin relates to a skatecraft having three planes, with two wheels mounted on the central plane and one wheel mounted on each outboard plane, to provide a unique wheel mounting arrangement for trick

riding. There would be no motivation to combine this unusual three plane arrangement with the skateboard in Tibbals because it would completely change the nature of the skateboard in Tibbals. Therefore, Applicants respectfully submit that claims 7 and 20 are not obvious over Tibbals in view of Vogel and in further view of Zatlin, because the combination of these references does not achieve the claimed invention and no motivation exists to combine these references.


CONCLUSION

On the basis of the above amendments, reconsideration and allowance of the application is believed to be warranted and such action is respectfully requested. If the Examiner has any questions or comments regarding this amendment, he is respectfully urged to contact the undersigned at the number listed below.

Respectfully submitted,

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